

# Decision Record:

## Riparian Vegetation Propagation Project

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### Background

Off-highway vehicle (OHV) damage, historical grazing practices, invasive nonnative plants, and periodic intense flooding, have reduced native riparian vegetation densities in some areas of the Hassayampa Field Office and Agua Fria National Monument. This reduction of vegetation density has led to stream bank destabilization in some areas. Remediation of these areas is needed to prevent further degradation. Increased native riparian vegetation cover would help stabilize stream banks and improve wildlife habitat.

Additionally, recent route designation for the Agua Fria National Monument and Table Mesa Recreation Management Zone (RMZ) has closed some routes to OHV use in the riparian areas for the purposes of protecting riparian resources. Some of the route closures remain as visible roads due to lack of vegetation. Because of the lack of vegetation, despite route closure, some OHV users continue to drive on closed roads.

The purpose of this action is to increase native riparian vegetation along the banks of streams in the Hassayampa Field Office. This action is needed to increase stream bank stability, improve wildlife habitat, and to meet objectives for riparian health as outlined in the Approved Bradshaw-Harquahala Resource Management Plan (2010). The decision to be made is whether or not to approve the project as proposed or modified.

### Proposed Action and Alternatives

The proposed project consists of propagating riparian woody and herbaceous plants along stream banks on BLM administered lands in the Hassayampa Field Office. This project would also involve planting xeroriparian trees and shrubs in the riparian buffer zone at selected areas along the Agua Fria River. Species type and propagation techniques are discussed below.

Four site-specific project areas are identified in the proposed action. These sites have been previously impacted by OHV use. OHV use has now been restricted from these areas through the installation of vehicle barriers.

Future riparian revegetation projects would be tiered to this environmental assessment (EA) with the addition of site-specific analysis. This project would begin in the winter of 2012 and would continue for a maximum of ten years.

In the no action alternative, no plant propagation/transplanting would occur.

## Compliance with the National Environmental Policy Act

Environmental assessment # DOI-BLM-AZ-P010-2011-021-EA was prepared to assess the potential environmental impacts anticipated to result from implementation of the above-described alternatives for riparian vegetation propagation. This **Environmental Assessment** and associated **Finding of No Significant Impact** were available for public review and comment through November 30, 2011.

## Plan Conformance

This action conforms to the Bradshaw-Harquahala Resource Management Plan and the Agua Fria National Monument Resource Management Plan decisions:

VM-1 - Maintain, restore, or enhance the diversity, distribution, and viability of populations of native plants, and maintain, restore, or enhance overall ecosystem health.

RP-1 - Riparian areas will include a plant community that consists of stream banks dominated (> 50 percent) by native species from the genera *Scirpus*, *Carex*, *Juncus*, and *Eleocharis*. The size class distribution of native riparian obligate trees will be > 15 percent seedlings, > 15 percent mid-size, and > 15 percent large size (depending on existing conditions and the site potential). Size classes are defined as follows:

- Seedlings are < 1 inch in basal diameter.
- Mid-sizes are 1 to 6 inches in basal diameter.
- Large sizes are > 6 inches in basal diameter.

TE-8 - Riparian areas that could physically support (due to floodplain width and gradient) yellow-billed cuckoo habitats will attain the vegetation structure, plant species diversity, density, and canopy cover to constitute suitable habitat. Livestock utilization will not substantially reduce the abundance, density or distribution of native riparian tree species through herbivory.

LH-3 - Productive, diverse upland and riparian-wetland plant communities of native species exist and are maintained.

## Scoping & Public Participation

Internal scoping was conducted with Hassayampa Field Office and Agua Fria National Monument specialists. Prior to making a decision, the BLM made the environmental assessment available for 30 days for public review and comment. Comments were received from the Sierra Club and one member of the public. Comments are summarized below:

**Table 1 Comment Summary**

Issue/Comment	Disposition	How are issues addressed in EA?
General support for the project	Non-substantive	Non-substantive, not addressed in EA
Suggestion that BLM evaluate the allotment management plan and make changes to lease terms and conditions for the effect of riparian restoration and upland health (amount of permitted use, large cattle exclosures)	Substantive  (Out of Scope Alternative)	Not addressed in EA.  Changes to grazing terms and conditions will be considered during the grazing permit renewal process.
Suggestion that BLM consider cattle exclosure fencing as an absolute component of the proposed action, rather than an adaptive management tool.	Substantive (Alternatives)	The BLM has considered fencing as an adaptive management tool because placement of fencing can have impacts on hydrological function, vegetation viability in floods.
Concern that BLM does not adequately analyze impacts to rangeland management from the proposed action	Substantive (Issues Analysis)	Impacts to rangeland management have been refined. Additionally, impacts to riparian resources have been added.

## Issues

Issues/Questions identified during internal scoping include:

1. How would this project improve wildlife habitat?
2. How would this project promote stream bank stability?
3. What would be the impacts of this project on water quality, fish, and fish habitat?
4. Would this project promote the spread of nonnative invasive weeds?
5. How would this project impact sites where donor plants are taken?
6. How would this project implement the Bradshaw-Harquahala RMP?
7. How would these activities affect migratory birds and BLM special status wildlife species and their habitat?
8. What impact would this project have on cultural resources?

## Persons and Agencies Consulted

- National Resources Conservation Service
- Arizona Game and Fish Department

- The Arizona Audubon Society

## Decision and Rationale on Action

I have decided to implement the proposed action, analyzed by the Riparian Vegetation Propagation Environmental Assessment. This alternative will result in improved streambank stability, wildlife habitat, and in the restoration of native riparian plant communities.

The Riparian Vegetation Propagation Environmental Assessment was posted to the BLM Arizona NEPA log on 11-1-2011 for a 30 day comment period. During the comment period two comments were received and are addressed in the revised environmental assessment and Finding of No Significant Impact.

The following stipulation is required as conditions of implementation:

1. If any cultural and or paleontological resource, site of object is discovered during the course of the restoration measures as detailed above a BLM Phoenix district archaeologist will be immediately notified. All work will cease until an evaluation of the discovery is made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The consulted Indian tribes will be consulted.

## Authority for Decision

- Federal Land Management Policy Act of 1976, as amended
- EO11990 Protection of Wetlands

## Implementation Date

This decision will be effective on the date indicated below.

\_\_\_\_/s/\_\_\_\_\_

Elroy H. Masters, Acting Hassayampa Field Office Manager

\_\_\_\_01/24/2012\_\_\_\_

Date

## Administrative Review of Appeal Opportunities

This decision is subject to appeal per the procedures at 43 CFR 4.410-4.415. An appeal may be accompanied by a petition for stay of the decision in accordance with 43 CFR 4.21, pending final determination on appeal. The appeal and petition for stay must be filed in the office of the authorized officer, as noted below, within 30 days following receipt of this decision:

Bureau of Land Management  
Hassayampa Field Office  
ATTN: Elroy Masters  
21605 North 7<sup>th</sup> Avenue  
Phoenix, AZ 85027

The appeal shall state the reasons, clearly and concisely, why the appellant feels that the decision here is in error.

In accordance with 43 CFR 4.21(b)(1) a petition for stay, if filed, must show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied.
2. The likelihood of the appellant's success on the merits.
3. The likelihood of immediate and irreparable harm if the stay is not granted, and
4. Whether the public interest favors granting the stay.

### **Contact Person**

For additional information concerning this decision contact Codey Carter (623) 580-5678 or Elroy Masters (623) 580-5530

The BLM Hassayampa Field Office has prepared an Environmental Assessment (DOI-BLM-AZ-P010-2011-021-EA) for a proposed riparian vegetation treatment project on the Agua Fria River. The following **Environmental Assessment** and associated **Finding of No Significant Impact** were available for public review and comment through November 30, 2011. Two comments were received and are addressed in the revised Environmental Assessment and Finding of No Significant Impact.

Parties who commented on the document will receive notice of decision and directions on appeal opportunities.

If you have questions about the Environmental Assessment and Finding of No Significant Impact, **please contact Codey Carter, wildlife biologist, at [cdcarter@blm.gov](mailto:cdcarter@blm.gov).**

*Prepared by:*

Codey Carter, Wildlife Biologist

*Reviewed by:*

Leah Baker, Planning & Environmental Coordinator

*Approved by:*

Elroy H. Masters: Acting Field Manager, Hassayampa Field Office

## **Finding of No Significant Impact**

### **DOI-BLM-AZ-P010-2011-021-EA**

### **Riparian Vegetation Propagation**

Based on the analysis of potential environmental impacts contained in the attached environmental assessment (EA), and considering the significance criteria in 40 CFR 1508.27, described below, I have determined that the proposed action will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

### **Context**

The proposed project would take place in riparian areas located in the Hassayampa Field Office. The project will involve transplanting native riparian and xeroriparian vegetation along the stream banks. Historical grazing practices, OHV damage, invasive nonnative plants, and periodic intense flooding, has reduced native riparian vegetation densities in some areas of the Hassayampa Field Office. Approximately 1.5 miles of riparian habitat along the Agua Fria River has been identified for this treatment. Other riparian areas in the Field Office may be treated as they are identified and cleared for site-specific resource conflicts such as cultural resource conflicts. Increasing the cover of native riparian obligate vegetation will help stabilize streambanks, and improve wildlife habitat.

After public review the following changes were made to the EA:

1. Riparian resources were analyzed
2. Additional analysis was conducted for the rangeland management resource
3. The size of the riparian vegetation exclosures was clarified (less than one acre each)
4. A table was added to summarize and address public comments

### **Intensity**

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this proposal:

#### **1. Impacts that may be both beneficial and adverse**

**Beneficial impacts include:** The cover of riparian vegetation will increase. Native aquatic species such as native fish, leopard frogs and garter snakes will benefit from increased habitat diversity that riparian vegetation creates such as undercut banks, submerged plants and roots for cover. This project should improve water quality by stabilizing the banks, reducing erosion, slowing flood flows, increasing the deposition of suspended sediments, reducing water temperature through shading and increasing stream depth. This project would increase habitat for many bird species especially riparian obligate species such as the yellow-billed cuckoo, an Endangered Species Act (ESA) candidate species. No threatened or endangered species or critical habitat will be affected by this project. This project would implement the Bradshaw-Harquahala Resource Management Plan and the Agua Fria National Monument Resource Management Plan.

**Negative impacts include:** In the short-term there will be some impact to riparian vegetation by cutting branches from trees and plugs from patches of riparian herbaceous plants. This may temporarily reduce habitat for riparian dependent wildlife such as the yellow-billed cuckoo and other riparian and migratory birds. Nesting riparian birds would not be disturbed because cuttings would only be taken during the winter when birds are not nesting. Riparian trees are fast-growing so the reduction of habitat will likely be short-lived. Plugs taken out of patches of riparian herbaceous vegetation typically fill in within one year (USDA NRCS 2007). Weeds could potentially be spread from one area to another through taking plugs of riparian herbaceous vegetation and transplanting them elsewhere. To mitigate for the potential spread of weeds, plugs of riparian vegetation will not be

taken from areas where weeds are present. Prehistoric and historic artifacts may be disturbed or damaged by digging holes for vegetation transplant. To mitigate for this potential, site-specific clearances will be obtained prior to ground disturbance. To prevent damage from livestock small (less than one acre) exclosures may need to be built around the newly planted vegetation.

**2. Degree of effect on public health and safety**

No effect.

**3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas:**

There are potential negative impacts to cultural artifacts from the surface disturbance of planting vegetation. To mitigate for this potential impact, the sites will be cleared for cultural resources prior to planting. Riparian areas are critical for many wildlife species. There may be short term impacts at the vegetation donor sites and mentioned above, however the long-term benefits will be positive for riparian dependent species.

**4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial:**

Possible effects on the quality of the human environment are not likely to be controversial.

**5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.**

There is little uncertainty as to the effects on the quality of the human environment. It is unlikely that there are unique or unknown risks inherent this action.

**6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration:**

This action should have no such effect.

**7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts:**

This action is not related to other actions that would cumulatively cause significant negative actions. This action could be related to other pro-active land health improvement projects that would cumulatively causes significant positive impacts on the human environment.

**8. Degree to which the action may adversely affect district, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources:**

There is a chance that cultural resources could be damaged while transplanting vegetation. If any cultural and or paleontological resource, site of object is discovered during the course of the restoration measures as detailed above a BLM Phoenix district archaeologist will be immediately notified. All work will cease until an evaluation of the discovery is made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The consulted Indian tribes will be consulted.

**9. Degree to which the action may adversely affect an endangered or threatened species or its critical habitat:**

No proposed or listed species occur in the project area. Also, no proposed or designated critical habitat occurs in the project area.

**10. Whether the action threatens a violation of federal, state, or local environmental protection law:**

This action does not violate any federal, state, or local environmental protection laws.

\_\_\_\_\_/s/\_\_\_\_\_  
Elroy H. Masters, Acting Field Manager, Hassayampa Field Office

\_\_\_\_01/24/2012\_\_\_\_\_  
Date

# Riparian Vegetation Propagation Environmental Assessment

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## Introduction

Off-highway vehicle (OHV) damage, historical grazing practices, invasive nonnative plants, and periodic intense flooding, have reduced native riparian vegetation densities in some areas of the Hassayampa Field Office and Agua Fria National Monument. This reduction of vegetation density has led to stream bank destabilization in some areas. Remediation of these areas is needed to prevent further degradation. Increased native riparian vegetation cover would help stabilize stream banks and improve wildlife habitat.

Additionally, recent route designation for the Agua Fria National Monument and Table Mesa Recreation Management Zone (RMZ) has closed some routes to OHV use in the riparian areas for the purposes of protecting riparian resources. Some of the route closures remain as visible roads due to lack of vegetation. Because of the lack of vegetation, despite route closure, some OHV users continue to drive on closed roads.

This environmental assessment (EA) will analyze impacts of the proposed BLM action. The National Environmental Policy Act (NEPA) number is: DOI-BLM-AZ-P010-2011-021-EA.

## Purpose and Need for Action and Decision to be Made

The purpose of this action is to increase native riparian vegetation along the banks of streams in the Hassayampa Field Office. This action is needed to increase stream bank stability, improve wildlife habitat, and to meet objectives for riparian health as outlined in the Approved Bradshaw-Harquahala Resource Management Plan (2010). The decision to be made is whether or not to approve the project as proposed or modified.

## Land Use Plan Conformance

This action conforms to the Bradshaw-Harquahala Resource Management Plan and the Agua Fria National Monument Resource Management Plan decisions:

VM-1 - Maintain, restore, or enhance the diversity, distribution, and viability of populations of native plants, and maintain, restore, or enhance overall ecosystem health.

RP-1 - Riparian areas will include a plant community that consists of stream banks dominated (> 50 percent) by native species from the genera *Scirpus*, *Carex*, *Juncus*, and *Eleocharis*. The size class distribution of native riparian obligate trees will be > 15 percent seedlings, > 15 percent mid-size, and > 15 percent large size (depending on existing conditions and the site potential). Size classes are defined as follows:

- Seedlings are < 1 inch in basal diameter.
- Mid-sizes are 1 to 6 inches in basal diameter.

- Large sizes are > 6 inches in basal diameter.

TE-8 - Riparian areas that could physically support (due to floodplain width and gradient) yellow-billed cuckoo habitats will attain the vegetation structure, plant species diversity, density, and canopy cover to constitute suitable habitat. Livestock utilization will not substantially reduce the abundance, density or distribution of native riparian tree species through herbivory.

LH-3 - Productive, diverse upland and riparian-wetland plant communities of native species exist and are maintained.

## Scoping and Issues

### Scoping & Public Participation

Internal scoping was conducted with Hassayampa Field Office and Agua Fria National Monument specialists. Additionally, a scoping letter was sent to potential interested members of the public, with the comment period concluding on November 30, 2011. Comments were received from the Sierra Club and one member of the public. Comments are summarized below.

**Table 2: Scoping Comment Summary**

Issue/Comment	Disposition	How are issues addressed in EA?
<b>General support for the project</b>	Non-substantive	Non-substantive, not addressed in EA
<b>Suggestion that BLM evaluate the allotment management plan and make changes to lease terms and conditions for the effect of riparian restoration and upland health (amount of permitted use, large cattle enclosures)</b>	Substantive <b>(Out of Scope Alternative)</b>	Not addressed in EA. Changes to grazing terms and conditions will be considered during the grazing permit renewal process.
<b>Suggestion that BLM consider cattle enclosure fencing as an absolute component of the proposed action, rather than an adaptive management tool.</b>	Substantive <b>(Alternatives)</b>	The BLM has considered fencing as an adaptive management tool because placement of fencing can have impacts on hydrological function, vegetation viability in floods. See discussion in <i>Alternatives Considered but Removed From Detailed Analysis</i>
Concern that BLM does not adequately analyze impacts to rangeland management from the proposed action	Substantive <b>(Issues Analysis)</b>	Impacts to rangeland management have been refined. Additionally, impacts to riparian resources have been added.

### Issues

Issues/Questions identified during internal scoping include:

1. How would this project improve wildlife habitat?
2. How would this project promote stream bank stability?
3. What would be the impacts of this project on water quality, fish, and fish habitat?
4. Would this project promote the spread of nonnative invasive weeds?
5. How would this project impact sites where donor plants are taken?

6. How would this project implement the Bradshaw-Harquahala RMP?
7. How would these activities affect migratory birds and BLM special status wildlife species and their habitat?
8. What impact would this project have on cultural resources?

## Alternatives

### Proposed Action

The proposed project consists of propagating riparian woody and herbaceous plants along stream banks on Bureau of Land Management (BLM) administered lands in the Hassayampa Field Office. This project would also involve planting xeroriparian trees and shrubs in the riparian buffer zone at selected areas along the Agua Fria River. Species type and propagation techniques are discussed below.

Four site-specific project areas are identified in the proposed action. These sites have been previously impacted by OHV use. OHV use has now been restricted from these areas through the installation of vehicle barriers.

Future riparian revegetation projects would be tiered to this EA with the addition of site-specific analysis. This project would begin in the winter of 2012 and would continue for a maximum of ten years.

### Propagation of cottonwood and willow

Cuttings from cottonwood trees (*Populus fremontii*) and willows (*Salix gooddingii*) would be taken from trees along the Agua Fria River and transplanted along the river in other areas that lack riparian trees. This would be accomplished according to Natural Resource Conservation Service (NRCS) guidelines, as outlined in Appendix A.

### Propagation of other woody riparian and riparian transition zone plants

Other woody species that may be propagated on the Hassayampa Field Office in riparian and riparian transition zone areas include: velvet mesquite (*Prosopis velutina*), seep willow (*Baccharis salicifolia*), desert broom (*Baccharis sarothroides*), ironwood (*Olneya tesota*), and desert willow (*Chilopsis linearis*). Velvet mesquite, seep willow, desert broom, and desert willow can be propagated by cuttings similar to willow and cottonwood trees, but with a lower success rate. All of these species, with the addition of Ironwood, can be propagated by transplanting the entire plant. Some species of *Baccharis* and mesquite have been successfully propagated by deep longstem plantings. Methods for transplanting these species are described in Appendix A. These trees or shrubs to be planted would be taken from areas near the planting sites where a high density of trees or shrubs exist, or salvage trees and shrubs may be obtained from construction zones if the opportunity arises, or certified disease free trees and shrubs may be obtained from commercial nursery stock.

### Propagation of herbaceous plants

Herbaceous species from the genera *Scirpus*, *Carex*, *Eleocharus*, and *Juncus* would be transplanted on other areas along the Agua Fria that lack riparian herbaceous plant cover. This would be accomplished according to NRCS guidelines (see Appendix A).

### Propagation Sites

Four specific sites have been identified for propagation of native riparian species thus far. These areas have been heavily impacted by off-road vehicles in the past, but recently BLM has installed vehicle barriers to help protect these areas. Other riparian areas that are identified in the future may be tiered to this EA and further analyzed for site specific impacts. At each site identified below, temporary fencing of newly planted vegetation may occur to protect young plants from cattle grazing and wildlife browsing. At each site, no more than one acre would have enclosure fencing. Since fencing itself can have negative impacts (such as sediment and debris trapping during floods) and can cause vegetation to be uprooted, construction would occur only if it is determined that cattle grazing and wildlife browsing is affecting the young plants' viability. If greater than ten percent of the newly planted vegetation is trampled or has greater than 20% utilization by grazing or browsing animals, temporary fences will be installed to protect seedlings.

#### Site One – River Bend Site

This site is located on the banks of the Agua Fria River in the northern end of the Agua Fria River National Monument (Figure 1). The legal description is: Township 11N, Range 3E, Section 20. The site is approximately 1 mile long, stretching from the confluence of Big Bug Creek upstream to the private property boundary at the southern edge of Township 11N, Range 3E, Section 17 (See Figure 1 for UTM coordinates). Specific treatment sites within the 1 mile reach are less than 1 acre in total. The width of the site would be from the edge of the water out 6 meters on both sides of the stream. Gooding's willow, Fremont cottonwood, and herbaceous species from the genera *Scirpus*, *Carex*, *Eleocharus*, and *Juncus* are proposed to be planted at this site.

#### Site Two – Little Pan Crossing 1

This site is located on the banks of the Agua Fria River in the Table Mesa Recreation Area (Figure 2). The legal description is: Township 8N, Range 2E, Section 28. The center of the crossing is located at UTM NAD 83 12 392163E 3764424N. The site includes both sides of the road crossing. The crossing is approximately 50 meters long. Vegetation is proposed to be planted in an approximately 10 meter-wide belt on both sides of the road where the road crosses through the riparian area, for a total project footprint of 1000 square meters. Gooding's willow, Fremont cottonwood, and herbaceous species from the genera *Scirpus*, *Carex*, *Eleocharus*, and *Juncus* are proposed to be planted at this site. Riparian transition zone woody vegetation is also proposed (including velvet mesquite, desert broom, seep willow, ironwood, and desert willow).

#### Site Three – Little Pan Crossing 2

This site is located on the banks of the Agua Fria River in the Table Mesa Recreation Area (Figure 2). The legal description is: Township 8N, Range 2E, Section 29. The center of the crossing is located at UTM NAD 83 12 391488E 3764485N. The site includes both sides of the road crossing. The crossing is approximately 50 meters long. Vegetation is proposed to be planted in an approximately 10 meter-wide

belt on both sides of the road where the road crosses through the riparian area. This would equal an area of 1000 square meters. Gooding's willow, Fremont cottonwood, and herbaceous species from the genera *Scirpus*, *Carex*, *Eleocharus*, and *Juncus* are also proposed to be planted at this site. We also propose to plant riparian transition zone woody vegetation including velvet mesquite, desert broom, seep willow, ironwood, and desert willow.

#### **Site Four – River Terrace Site**

This site is located on the banks of the Agua Fria River in the Table Mesa Recreation Area (Figure 3). The legal description is: Township 8N, Range 2E, Section 32. The center of the crossing is located at UTM NAD 83 12 390497E 3762664N. The site includes both sides of the road crossing. The crossing is approximately 50 meters long. Vegetation is proposed to be planted in an approximately 10 meter-wide belt on both sides of the road where the road crosses through the riparian area. This would equal an area of 1000 square meters. Gooding's willow, Fremont cottonwood, and herbaceous species from the genera *Scirpus*, *Carex*, *Eleocharus*, and *Juncus* are proposed to be planted at this site, along with riparian transition zone woody vegetation including velvet mesquite, desert broom, seep willow, ironwood, and desert willow.

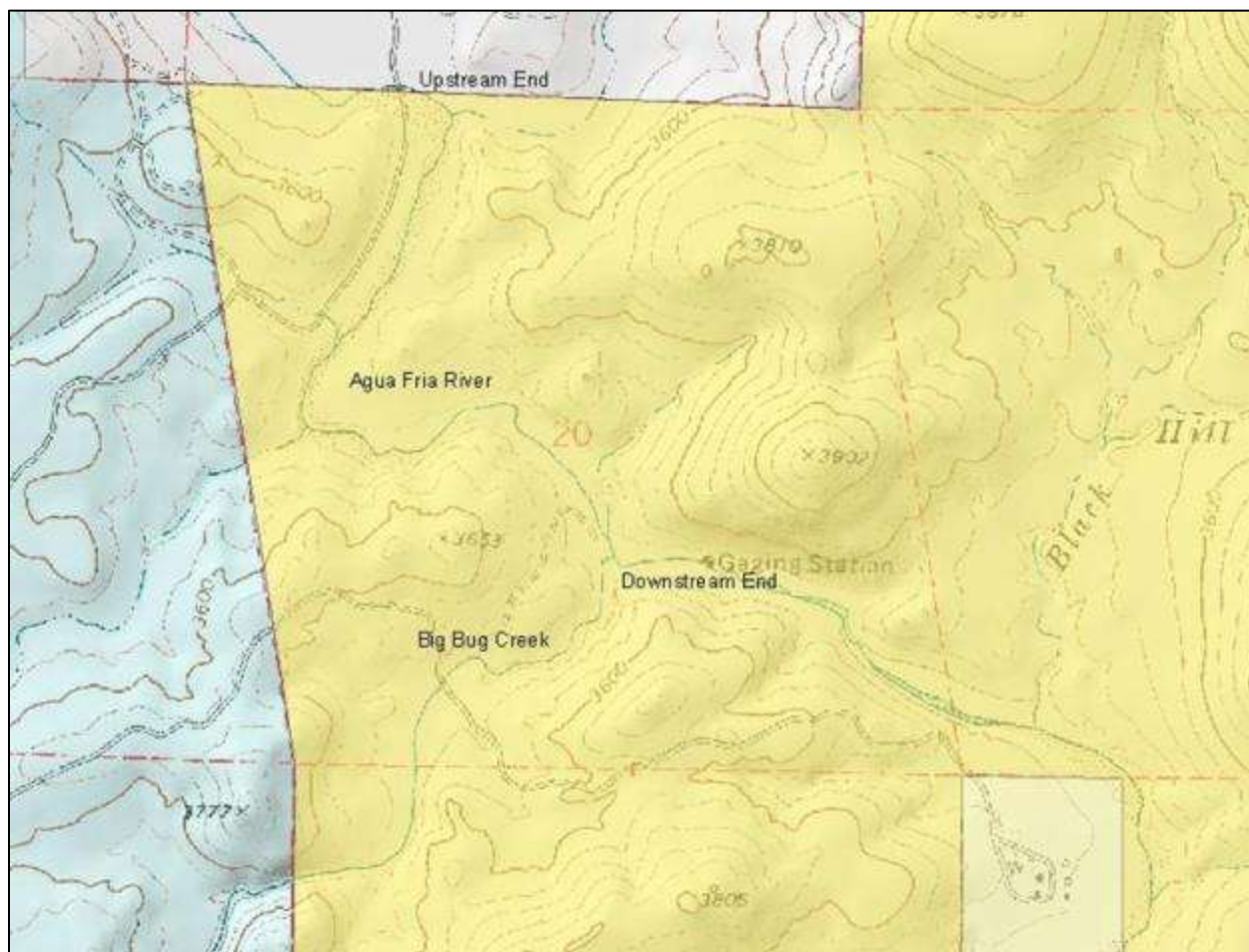


Figure 1: The downstream end of site one is located at the confluence with Big Bug Creek (UTM NAD 83 12 401887E 3797601N). The upstream end is located at the private property boundary (UTM NAD 83 12 401426E 3798714N). Private lands are depicted in white, state trust lands are depicted in blue, and BLM lands are depicted in yellow.

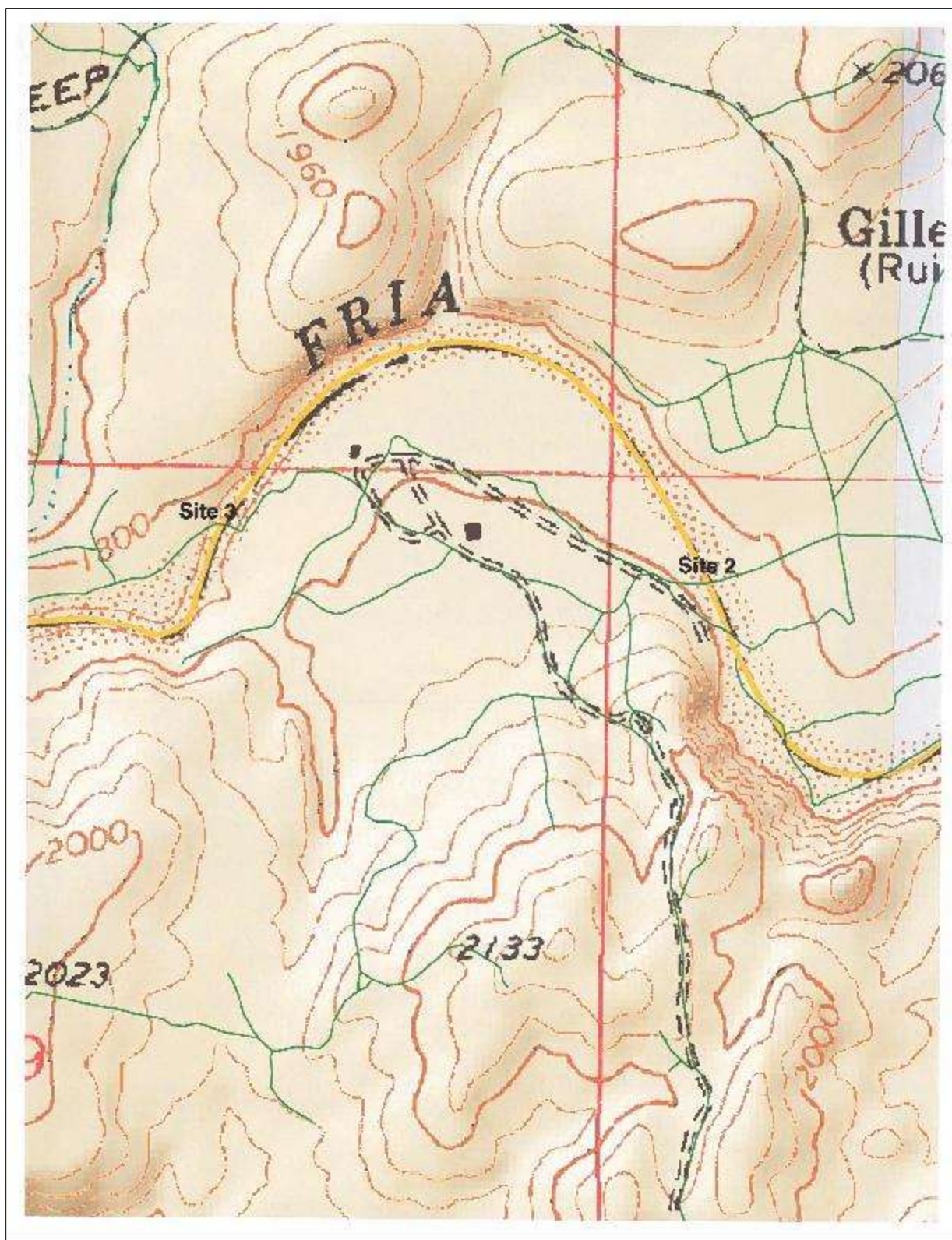


Figure 2: Location of sites 2 and 3.

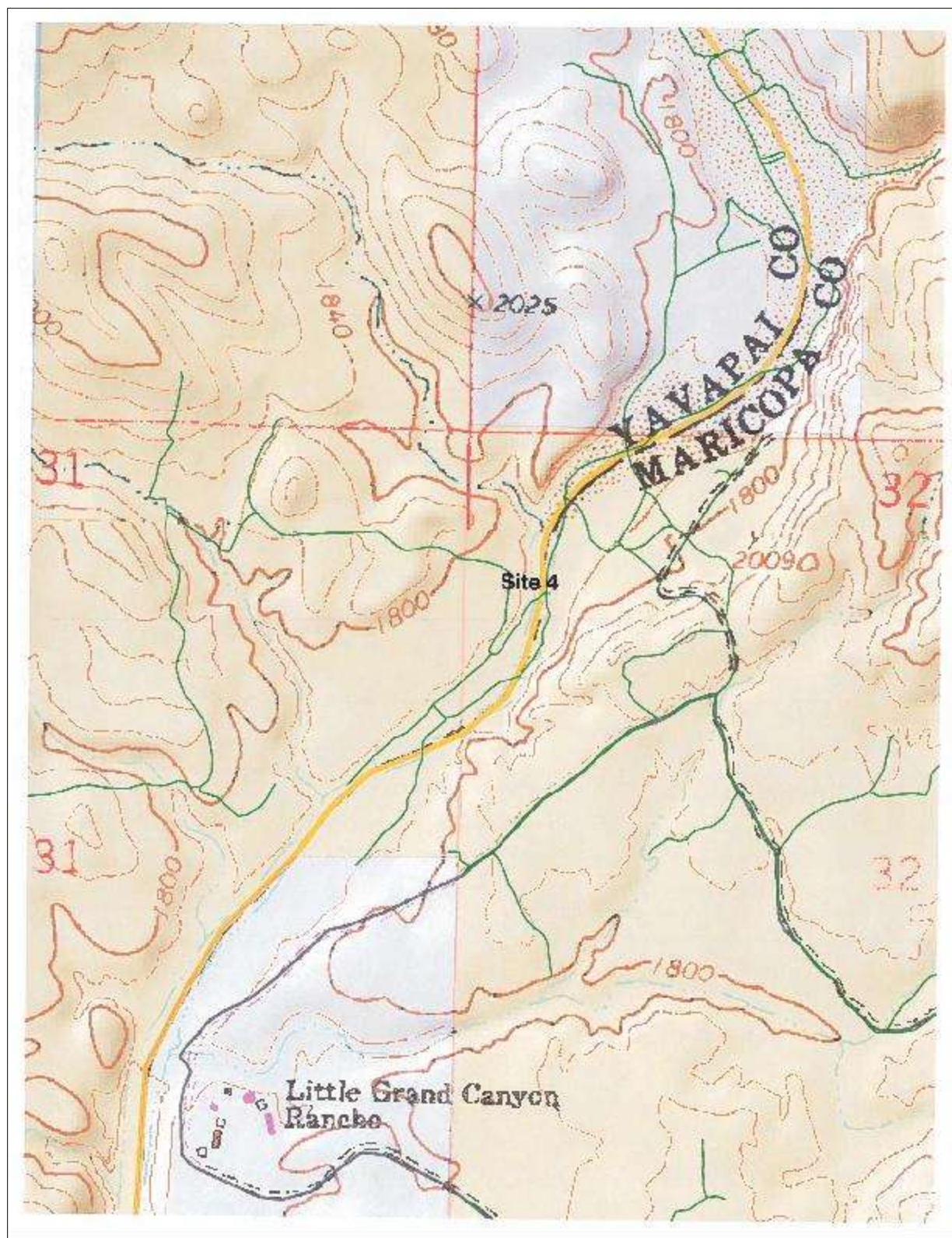


Figure 3: Location of site 4.

## No Action Alternative

In the no action alternative, no plant propagation/transplanting would occur.

## Alternatives Considered but Removed from Detailed Analysis

The suggestion by the Sierra Club to prescribe cattle enclosure fencing at all four sites was considered. The BLM determined that mandating fencing would not necessarily meet the purpose and need of the proposed action. Because fencing in riparian areas has some risk of detrimental impacts (in the event of a flood), the BLM would prefer to reserve fencing as an adaptive management tool. Under the proposed action, transplanted areas would be fenced to exclude cattle grazing and wildlife browsing if monitoring indicates that those activities are occurring.

The alternative proposed is removed from detailed analysis because it does not meet the purpose and need, whereas an adaptive management approach would.

## Affected Environment

### Biological and Riparian Resources

The BLM Hassayampa Field Office manages approximately one million acres of public lands north and west of Phoenix, Arizona, including the Agua Fria National Monument. Habitat varies from upper Sonoran desert scrub to broad expanses of grassland. Lush desert riparian habitats occur in many areas of the Field Office. Riparian habitat on the Hassayampa Field Office supports many native riparian obligate wildlife species such as lowland leopard frogs, longfin dace, desert sucker, Sonoran mud turtle, and a variety of migratory birds such as the yellow-billed cuckoo, an Endangered Species Act (ESA) candidate species. The endangered Gila chub, desert pupfish and Gila top minnow also depend on healthy riparian areas to maintain water quality and aquatic habitat structure.

All proposed vegetation rehabilitation sites are located within the Agua Fria River. Surface water may be present year around in some areas but is dependent upon winter rains. However, both surface and subsurface water support a wide variety of riparian obligate vegetation. Species include Fremont cottonwood (*Populus fremontii*), Goodding's willow (*Salix gooddingii*), Velvet ash (*Fraxinus velutina*), and Salt cedar (*Tamarix ramosissima*) and Mesquite (*Prosopis velutina*). Understory species include seep willow (*Baccharis salicifolia*), Bermudagrass (*Cynodon dactylon*), cocklebur (*Xanthium L.*), common three square sedge (*Schoenoplectus pungens*).

Past impacts to the Agua Fria River include OHV damage, grazing, and drought. To assess the condition of riparian areas, Proper Functioning Condition (PFC) assessments have been conducted to determine Functional Ratings (BLM Technical Reference 1737-16). These project areas fall within PFC segments 6063-1P, 6215-1D/E/G. Past assessment ratings for these segments have ranged from "Proper Functioning Condition" (PFC) to "Functional –At Risk" (FAR). Standard Riparian Area Description Area Records yielded both "Satisfactory" and "Unsatisfactory" results. Past Riparian Area Description Records and Proper Functioning Condition findings are summarized below.

**Table 3: Proper Functioning Condition Summary**

Segment	Length	Year Evaluated	Condition/Trend
6063-1P	2.4 miles	1991	Unsatisfactory
		1995	FAR-NA
		2000	FAR-NA
		2004	FAR-NA
		1991	Unsatisfactory
6215-1D	2.16 mile	1988	Unsatisfactory
		1997	PFC/FAR-UP
		2008	FAR-NA
6215-1E	1.50 mile	1988	Satisfactory
		1997	FAR-NA
		2005	FAR-NA
		2008	FAR-NA
		1988	Unsatisfactory
6215-1G	2.65 miles	1997	PFC
		2008	PFC

***FAR-Functional At Risk, UP-Upward trend, DN- Downward trend, NA- Not Apparent trend***

The condition assessment results of unsatisfactory and FAR-NA were attributed to OHV impacts, livestock grazing, and drought. In an effort to improve these resource conditions, many management actions have been implemented. Actions include both OHV and grazing management actions. Riparian pastures within the Agua Fria National Monument (PFC segment 6063-1P) have been changed to winter season of use, which is from November 1 to March 1 (AFNM ROD/RMP 2010). An OHV barrier was constructed in 2011 to prevent OHV access and protect riparian resources within PFC segment 6063-1P, which was heavily impacted illegal OHV use. PFC segments 6215-1D/1E/1G are currently available to year around livestock grazing (BH ROD/RMP 2010). OHV damage to PFC segments 6215-1D/1E/1G continues despite the installation of multiple OHV barriers. OHV management efforts to prevent access into riparian areas are ongoing and intend to:

- Ensure recruitment and survival of cottonwood, willow, ash, and sycamore trees
- Allow the accumulation of vegetation in the herbaceous layer that protects the natural function of the streams

The effects of illegal OHV entry would increase the diversity and abundance of plant species and the complexity of the wildlife habitat, benefiting a number of wildlife species, including special status fish and migratory birds.

## Cultural Resources

BLM Arizona manages some of Arizona's best-preserved prehistoric and historic sites, which span the human occupation in North America. The Agua Fria National Monument alone contains more than 400 archaeological sites, spanning some 2,000 years of human history. Rivers and the surrounding riparian areas were no doubt important for these early inhabitants.

## Rangeland Management

The BLM administers 93 grazing allotments on the Hassayampa Field Office and 10 grazing allotments on the Agua Fria National Monument. The BLM activities for Arizona's grazing and rangeland program include resource monitoring, conducting land health assessments and evaluations, use authorizations, allotment planning and administration, developing vegetation objectives, integrating weed management and activity plan development in connection with land use planning. Maintaining riparian proper functioning condition is a key element of the land health standards in *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration*. The specific sites addressed in this EA are located in the Boulder Creek allotment and the Box Bar allotment.

The Box Bar allotment is located within the Agua Fria National Monument. It is comprised of 10,798 acres of BLM-administered public land, 1,928 acres of state land, and 100 acres of private land. The allotment is located between the Prescott National Forest and Interstate 17, southeast of Cordes Junction in Yavapai County, Arizona.

Box Bar allotment has an active grazing preference of 2,447 AUMs (Animal Unit Months). The allotment is a year round cow/calf operation with terms and conditions stipulating winter season of use (November 1<sup>st</sup> through March 1<sup>st</sup>) for the riparian pastures (Big Bug, River, Bald Hill, and Cross "S" pastures).

Site One – the River Bed Site is located in the Big Bug pasture and includes two riparian areas (Agua Fria River and Big Bug Creek). The Agua Fria River runs north to south and bisects the allotment. Big Bug Creek runs from west to east where it joins the Agua Fria River. The Big Bug pasture includes 2.4 miles of the Agua Fria River and 0.8 miles of Big Bug Creek.

The Boulder Creek allotment is within the Hassayampa Field office, located north-northeast of Lake Pleasant in the foothills of the Bradshaw Mountains. The allotment contains 28,658 acres of BLM-administered public land, 14,860 acres of state land, 4,668 acres of private land, 1,350 acres of Maricopa county owned land, and 211 acres of Bureau of Reclamation managed land.

The Boulder Creek allotment has an active preference of 5,040 AUMs. The allotment is a year-round cow/calf operation with no season of use stipulations for riparian areas and limited interior pasture fencing.

## Recreation Management

The BLM Hassayampa Field Office provides for a wide array of outdoor recreation activities such as hiking, mountain biking, hunting, camping, fishing, wildlife viewing, OHV riding, horseback riding, and auto touring. Riparian areas are focal points for wildlife dependent recreation such as fishing, hunting,

and bird watching; as well as for swimming, hiking and camping. The specific sites addressed in this EA are located within the Agua Fria National Monument and within the Table Mesa Recreation Area. All of these sites have been previously impacted by OHV riding in the riparian area, and all of these sites have been recently secured with barriers to prevent vehicle entry. The Table Mesa Recreation Area is heavily used by OHVs. The Table Mesa Area is also heavily used by recreational target shooting.

### **Soil, Water and Air Resources**

Soil is a fragile, finite resource that has a critical function in supporting land health, ecosystem sustainability, and promotes biological diversity. Healthy soils sustain plant communities, keep sediment out of streams, and dust out of the air. Riparian soils share many characteristics with their terrestrial upland counterparts, but they also differ in several ways. One of these differences is related to frequent flood events and associated depositional and erosional processes. Because of the continuous influences of these processes, riparian soils have higher spatial diversity, are typically younger and lack well-developed soil horizons relative to their terrestrial upland counterparts. Another major difference of riparian soils compared to adjacent terrestrial uplands is that they generally tend to be wetter and are subject to fluctuating water tables that may reach the soil surface (USDA-NRCS, 2005).

Clean and adequate supplies of water are necessary to promote healthy watersheds, provide fish and wildlife habitat, maintain drinking water sources, and allow safe recreational use of our surface water. Riparian areas play a key role in maintaining water quality by stabilizing soils and filtering upland sediment during runoff events. Vegetation within these riparian areas is critical in reducing water velocity during flood events which reduces erosion.

The air resource includes both climate and air quality. Climate is a driving force for all ecologic processes on earth and air quality affects human health and visibility.

## **Environmental Consequences**

### **Biological & Riparian Resources**

#### **Proposed Action**

The environmental consequences are positive over the long-term for all biological resources that may be affected as a result of this action. The cover of riparian vegetation would increase. Aquatic species such as native fish, leopard frogs and garter snakes would benefit from increased habitat diversity that riparian vegetation creates such as undercut banks, submerged plants and roots for cover. This proposed action would improve water quality by stabilizing the banks, reducing erosion, slowing flood flows, increasing the deposition of suspended sediments, reducing water temperature through shading and increasing stream depth. This project would increase habitat for many bird species especially riparian obligate species such as the yellow-billed cuckoo, a candidate species under the ESA.

Short-term negative impacts to riparian vegetation would occur. Branches from trees and shrubs as well as plugs from patches of riparian herbaceous plants would be collected. This may temporarily reduce habitat for riparian-dependent wildlife such as the yellow-billed cuckoo and other riparian and migratory birds. Nesting riparian birds would not be disturbed because cuttings would only be taken during the

winter when birds are not nesting. Riparian trees are fast-growing so the reduction of habitat would likely be short-lived. Plugs taken out of patches of riparian herbaceous vegetation typically fill in within one year (USDA NRCS 2007).

Weeds could potentially be spread from one area to another through transplanting plugs riparian herbaceous vegetation. To mitigate for the potential spread of weeds plugs of riparian vegetation would not be taken from areas where weeds are present.

Implementation of the proposed action would increase riparian vegetation cover and would further stabilize streambanks and help to meet standard two (riparian-wetland areas are in properly functioning condition) and standard three (productive, diverse upland and riparian-wetland plant communities of native species exist and are maintained) of the Land Health Standards described in *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration*. No anticipated negative impact to rangeland management is expected as a result of this project.

No threatened or endangered species or critical habitat would be adversely affected by this project.

#### **No Action**

Under the no action alternative, no active improvement to riparian vegetation would be conducted. In areas that lack sufficient vegetative cover, streambanks could further destabilize resulting in the loss of soil, vegetation, and wildlife habitat.

In areas that lack sufficient cover of riparian vegetation, streambanks could erode at an accelerated rate. This could further reduce vegetative cover needed to stabilize banks and dissipate energy during high flow events. This would reduce the ability of the riparian area to meet Standard Two of the Land Health Standards (riparian areas are in properly functioning condition) required in *Arizona Standards for Rangeland Health and Guidelines for Grazing Administration*.

### **Cultural Resources**

#### **Proposed Action**

Prehistoric and historic artifacts may be disturbed or damaged by digging holes for vegetation transplant. To mitigate for this potential, site-specific clearances would be obtained prior to ground disturbance.

#### **No Action**

In areas that lack sufficient cover of riparian vegetation, streambanks could erode at an accelerated rate. This could further reduce vegetative cover needed to stabilize banks and dissipate energy during high flow events. This may result in increased loss of cultural resources through erosion.

### **Rangeland Management**

#### **Proposed Action**

Under the proposed action, no effect to grazing management is expected. If greater than ten percent of the newly planted vegetation is trampled or has greater than 20% utilization by grazing or browsing

animals, temporary exclosures would be installed to protect the newly planted vegetation. These exclosures would be less than an acres in size and would not interfere with current grazing practices or impact livestock movement in any of the sites. Potential excluded areas are likely not currently utilized by cattle due to their lack of vegetation. Upland grazing management will remain unaffected by the proposed action, as no activity is expected in the upland areas of either allotment. Livestock stocking rates, seasons of use (where applicable), and grazing lease Terms and Conditions will not be evaluated or modified based on this proposed action.

#### **No Action**

Under the No Action Alternative there would be no impacts or change to rangeland management from current conditions.

### **Recreation Management**

#### **Proposed Action**

No anticipated negative impact to recreation management is expected as a result of this project. Stabilizing streambanks and improving wildlife habitat should have beneficial impacts for recreational activities such as hunting, fishing, bird watching. In places where roads cross a stream, planting riparian vegetation would help to define the road crossing and help prevent off-road travel in riparian areas.

#### **No Action**

In areas that lack sufficient cover of riparian vegetation, streambanks could erode at an accelerated rate. This could negatively impact wildlife habitat which could in turn negatively impact wildlife dependent recreation such as hunting, fishing and wildlife watching.

### **Soil, Air and Water Resources**

#### **Proposed Action**

This project would help preserve soil through the anchoring the soil with riparian vegetation. Water quality would likely improve by further stabilizing the banks and reducing erosion. No adverse impacts to air resources are expected as a result of this project.

#### **No Action**

In areas that lack sufficient cover of riparian vegetation, streambanks could erode at an accelerated rate. This could lead to soil loss and an increase in suspended sediments in the stream.

### **Cumulative Impacts**

#### **Proposed Action**

This project would increase streambank vegetation, improving bank stability, water quality, and wildlife habitat. Other actions on BLM public lands such as the current winter-only grazing policy on the Agua Fria National Monument, exclosures around riparian areas to exclude cattle, and barriers to prevent vehicle entry into riparian areas have an additive effect of increasing the quality and quantity of riparian habitat across a broader extent of the Hassayampa Field Office over time.

There are other factors in the region outside of public lands that may have a negative impact to riparian habitat including increased groundwater pumping, increased use of off-highway vehicles, and urbanization. These impacts would make intact riparian habitat on BLM lands all the more valuable.

#### **No Action**

In areas that lack sufficient cover of riparian vegetation, streambanks could erode at an accelerated rate. This could lead to soil loss and an increase in suspended sediments in the stream, as well as loss of wildlife habitat. This would be an additive negative impact on top of other region-wide impacts on lands outside of BLM public lands.

### **Tribes, Individuals, Organizations or Agencies Consulted**

National Resources Conservation Service

Arizona Game and Fish Department

The Arizona Audubon Society

### **References**

Bureau of Land Management. 2010. Agua Fria National Monument Record of Decision & Approved Resource Management Plan. Phoenix District, Phoenix, AZ.

Bureau of Land Management. 2010. Bradshaw Harquahala Record of Decision & Approved Resource Management Plan. Phoenix District, Phoenix, AZ.

Prichard, D. J. (1999). Technical Reference 1737-16. Denver, Colorado: U.S. Department of the Interior Bureau of Land Management.

USDA NRCS 2007. A guide for planning riparian treatments in New Mexico. 41 pp.

USDA NRCS 2005. Riparian Area and recognition part 411. In: Ecological Sites Title 110.

General Manual.

### **List of Preparers**

Codey Carter	Wildlife Biologist	BLM Hassayampa Field Office
Paul Sitzmann	Wildlife Biologist	Agua Fria National Monument
Bryan Lausten	Archaeologist	Agua Fria National Monument
Chris McLaughlin	Archaeologist	Hassayampa Field Office
Amanda James	Natural Resource Specialist	Agua Fria National Monument
James Holden	Rangeland Specialist	Hassayampa Field Office
Leah Baker	Environmental Coordinator	BLM Phoenix District

## Appendix A – Techniques

### NRCS Guidelines (USDA NRCS 2007)

- Select sites as close to the area as possible to conserve genetic diversity. Try to match donor site and re-vegetation site in terms of soils, elevation, hydro-dynamics, permanent groundwater table, and soil salinity (which should be low).
- Select willow cuttings from a local, native stand in healthy condition. Prune no more than 2/3 of plants in an area. Willow cuttings for pole plantings should generally be at least 1/2 inch in diameter or larger. Select the longest, straightest poles available. Use only two to four-year old wood. Vigorous young poles with larger diameters establish more readily and successfully than older or skinny poles. The total length of the poles needed depends upon the water table depth.
- Cut poles while dormant during January and February.
- Remove all side branches except the top two or three - making sure to keep the branch collars intact while pruning.
- Prepare cuttings by trimming off the top to remove the terminal bud, allowing a majority of the energy in the stem to be sent to the lateral buds for root and shoot development.
- Soak poles in water for at least 5 to 7 days before planting. The stump ends of poles should be placed in water tanks, streams or ditches to keep them hydrated between harvest and planting. Pole cuttings tolerate being out of water briefly during transport; this interval of desiccation should be minimized.
- Dig holes to the depth of the lowest anticipated water table. Sites where the water table will be within one foot of the ground surface during the growing season are better suited for willows than cottonwoods. The depth of the planting hole must be sufficient for the stump end of the pole to be in ground water throughout the growing season even if the water table drops. The hole depth and the desired aboveground height of the planted pole will determine the length of pole needed.
- The cuttings should extend several inches into the permanent water table to ensure adequate moisture for sprouting. At least 1/2 to 2/3 of the cutting should be below ground to prevent the cutting from being ripped out during high water flows. Usually, at least 2 to 3 feet should be below ground. It should also be long enough to emerge above adjacent vegetation such that it will not be shaded out.
- Place cuttings in the hole the same day they are removed from the soak treatment. Set the butt as close to the lowest annual water table elevation as possible.
- It is critical to ensure the soil is packed around the cutting to prevent air pockets. "Mudding" (filling the hole with water and then adding soil to make a mud slurry) can remove air pockets.
- As buds begin to swell (usually in April or May), wipe them off the lower two-thirds of the pole. This will reduce evapotranspiration water loss and stimulate root growth.
- To determine appropriate species and pole lengths for revegetation, measurement of depth to ground water is highly recommended. Inexpensive shallow monitoring wells will confirm the

depth and seasonal fluctuation of the water table. These groundwater depth measurements can help in the selection of appropriate species; for example, shrub willow species in general can tolerate shallower ground water depths (1.5 ft or deeper) than cottonwoods (4 ft or deeper).

### *Transplanting*

#### *Standard Planting Techniques (USDA NRCS 2007):*

Dig a hole of a depth about equal to the height of the root ball and at least three times as wide. Be sure not to disturb the soil any deeper directly under the location where the tree would be replaced to keep it from sinking. Rapidly so as to prevent the roots from drying out, remove the tree from the pot, place it in the hole, and backfill the hole with the original soil. The original soil without amendments should be used so that the roots would spread outward as they grow rather than coiling in circles inside the hole. Be careful not to cover the trunk of the tree higher than the original soil line and slope the backfill soil away from the trunk for drainage. Form a watering basin at the edge of the dripline. As the tree grows and the dripline expands, gradually move the water basin farther out. The tree should be watered infrequently but deeply during hot weather for the first 2 to 3 years. Excessive watering can loosen the soil and make the tree top heavy causing it to blow over in a storm.

#### *Deep Longstem Planting Techniques (USDA NRCS 2007):*

Deep planting of longstem stock has the advantage of placing the plant in the capillary fringe of the water table so that irrigation is unnecessary. Methods: If possible, insert the auger to the depth of the water table to disrupt any compacted zones that might restrict rapid root extension into the capillary fringe. Add enough backfill to the hole so the bottom portion of the root ball is in contact with the capillary fringe. Set the root ball to the desired depth and place a watering tube in the planting hole to allow deep irrigation if the water table declines or if a severe drought occurs. Backfill carefully around the root ball and stem to the ground surface. If sufficient water is available, thoroughly water the backfilled material immediately after planting. This is beneficial to collapse voids in the backfill and enhance soil-to-rootball contact.

#### *Wetland plan propagation (USDA NRCS 2007):*

Wetland plants are readily transplanted because of their tremendous root systems and the fact that the remaining plants would fill in the harvest hole rapidly. One rule of thumb is to dig no more than 1 ft<sup>2</sup> (0.09 m<sup>2</sup>) of plant material from a 4 ft<sup>2</sup> (0.4 m<sup>2</sup>) area. It is not necessary to harvest deeper than 5 to 6 in (13 to 15 cm). This depth would provide enough root mass to ensure good establishment at the project site. It would also retain enough of the transplants' root system below the harvest point to allow the plants to grow back into the harvest hole in one growing season assuming good hydrology and some sediment deposition (Hoag 1994, Bentrup and Hoag 1998). Plug spacing of 30-45 cm would fill in within one growing season. Transplants can be taken at almost any time of the year. Collections in Idaho have been taken from March to October with little or no difference in transplant establishment success. If plugs are taken during the summer months, cut the top growth to about 4 to 5 in (10 to 13 cm) above the potential standing water height or 10 in (26 cm) whichever is higher. Research at the Aberdeen, Idaho Plant Materials Center (Aberdeen PMC) has shown that covering the cut ends with water would

not necessarily kill the plant, but would significantly slow establishment rates. The plants may die if left covered for extended periods of time (Hoag et al. 1992). Cutting the tops also increases the survival rate of transplants that are transported long distances (Hoag 1994). Leaving the soil on the plug increases the establishment rate by about 30%. Beneficial organisms that are typically found on the roots of the wetland plants are important in the nitrogen and phosphorous cycles. These organisms that may not be present at the new site. Leaving soil on the plug however, would increase the volume of material that needs to be transported. There is a good chance that weed seeds could be transported in the soil if collected from a weed-infested area. Washed plugs reduce weed seed transport and can be inoculated with mycorrhizae purchased from dealers if the project objectives require it. The collection location should be inventoried to help determine whether the soil should be left on the plugs or washed off (Hoag 1994). If 1 ft<sup>2</sup> (0.09 m<sup>2</sup>) of plant material is harvested, it is possible to get 4 to 5 individual plant plugs from the larger plug (Hoag 1994). The plugs can either be chopped with a shovel very rapidly or the plugs can be cut relatively accurately with a small saw so they will easily fit into a predrilled, set diameter hole. To get the right length of plug, lay the large plug on its side on a sheet of plywood and use a saw to cut the bottom off level and to the desired length. After this, stand the plug up and slice smaller plugs off like a cake. Make sure the length of the plug is related to the saturation zone at the planting site. The bottom of the plug should be in contact with the saturation zone.